

EA



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/694,249	10/27/2003	Perry E. Phelan	46107-0034	2686

7590 09/22/2005

Douglas A. Mullen
Dickinson Wright PLLC
Suite 800
1901 L. Street NW
Washington, DC 20036

EXAMINER

LE, DAVID D

ART UNIT	PAPER NUMBER
----------	--------------

3681

DATE MAILED: 09/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/694,249

Applicant(s)

PHELAN ET AL.

Examiner

David D. Le

Art Unit

3681

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 11-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4 is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-7 and 11-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

1. This is the second Office action on the merits of Application No. 10/694,249, filed on 27 October 2003. Claims 1-7 and 11-15 are pending.

Documents

2. The following documents have been received and filed as part of the patent application:
 - Information Disclosure Statement, received on 10/27/03

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. **Claims 1-3, 5-7, 11, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by U. S. Patent No. 5,217,416 to Dick.**

Claims 1-3, 5-7, 11, and 13:

Dick (Fig. 1; column 2, line 32 – column 4, line 56) discloses a lock up/limited slip differential comprising:

- A differential case (14) rotatable about an axis, said differential case including a cover (32), a housing (34), an annulus gear (36), and a ring gear (28), said differential case defining a differential cavity having a clutch cavity and a planet cavity (i.e., Fig. 1);

- A retainer plate (i.e., Fig. 1, element 44) coupled to said housing and separating said clutch cavity from said planet cavity;
- Wherein the axial position of said retainer plate relative to said housing is adjustable depending on the length of the planet gears (48) and the size of the clutch (70);
- Wherein said housing includes a threaded section (i.e., Fig. 1, being the threaded portion where the bolt is occupied to secure the ring gear 28 to the housing 14), said planetary carrier includes a pedestal flange (i.e., Fig. 1, elements 42) and an axial hub (46);
- Wherein said clutch cavity is bounded by said retainer plate, axial hub, and housing (i.e., Fig. 1);
- Wherein said housing defines said clutch cavity and includes an axial opening, said retainer plate coupled to said housing between said clutch cavity and said axial opening (i.e., Fig. 1)
- Wherein said cover is fastened to said annulus gear to form said planet cavity, said ring gear is fastened to said annulus gear, and said housing is fastened to said ring gear or said annulus gear (i.e., Fig. 1);
- Wherein said ring gear is integral with said annulus gear, said cover is fastened to said integral annulus/ring gear and said housing is fastened to said integral annulus/ring gear (i.e., Fig. 1);

- Wherein said retainer plate is coupled to said housing to inherently resist axial forces from said planetary carrier such that said planetary differential is selectively configurable to function as a torque biasing differential or an open differential;
- Wherein a planetary gear set (40) is disposed within said planet cavity, said planetary gear set including a planetary carrier (41), inner and outer planet gears (50 and 48, respectively), and a sun gear (56);
- Wherein said inner and outer planet gears are coupled to inherently rotate with and relative to said planetary carrier;
- Wherein said outer planet gears are meshed with said annulus gear (column 3, lines 3-6);
- Wherein said inner planet gears are meshed with said outer planet gears and said sun gear (column 3, lines 6-7); and
- Wherein said differential includes a clutch pack (70) disposed in said clutch cavity and a clutch actuator (85) operatively coupled to said clutch pack when said differential is configured to function as the torque biasing differential, said clutch pack including first clutch plates (74) fixed to rotate with said carrier and second clutch plates (76) fixed to rotate with said sun gear, and wherein said retainer plate operatively engages said clutch pack to function as a reactor plate for said clutch pack when said planetary differential is configured to function as the torque biasing differential.

5. Claims 1-3 and 11-15 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,527,229 to Ishihara et al.

Claims 1-3 and 11-15:

Ishihara (i.e., Fig. 1; column 4, line 9 – column 6, line 25) discloses a planetary differential gear system comprising:

- A differential case (6) rotatable about an axis, said differential case including a cover (6a), a housing (6b), an annulus gear (4), and a ring gear (3), said differential case defining a differential cavity having a clutch cavity and a planet cavity (i.e., Fig. 1);
- A retainer plate (i.e., Fig. 1, element 13) operatively coupled to said housing and separating said clutch cavity from said planet cavity;
- Wherein said retainer plate is fixed from movement along said axis as said differential case is rotated about said axis (i.e., Fig. 1);
- Wherein the axial position of said retainer plate relative to said housing is adjustable depending on the length of the planet gears (11) and the size of the multi-disk clutch (C);
- Wherein said housing includes a threaded section (i.e., Fig. 1, being the threaded portion where the bolt occupied to secure the ring gear 3 to the housing 6), said planetary carrier includes a pedestal flange (i.e., Fig. 1, elements 13a adjacent to element 26) and an axial hub (i.e., Fig. 1, being the boss portion 13a that accommodate the clutch plates);

- Wherein said clutch cavity is bounded by said retainer plate, axial hub, and housing (i.e., Fig. 1);
- Wherein said retainer plate is coupled to said housing to inherently resist axial forces from said planetary carrier such that said planetary differential is selectively configurable to function as a torque biasing differential or an open differential;
- Wherein a planetary gear set is disposed within said planet cavity, said planetary gear set including a planetary carrier (13), inner and outer planet gears (11 and 14, respectively), and a sun gear (10);
- Wherein said inner and outer planet gears are coupled to inherently rotate with and relative to said planetary carrier (i.e., Fig. 1);
- Wherein said outer planet gears (11) are meshed with said annulus gear (column 4, lines 31-33);
- Wherein said inner planet gears (14) are meshed with said outer planet gears and said sun gear (column 4, lines 34-36); and
- Wherein said differential includes a clutch pack (C) disposed in said clutch cavity and a clutch actuator (20) operatively coupled to said clutch pack when said differential is configured to function as the torque biasing differential, said clutch pack including first clutch plates (19a) fixed to rotate with said housing and second clutch plates (19b) fixed to rotate with said planetary carrier; and

- Wherein said retainer plate operatively engages said clutch pack to function as a reactor plate for said clutch pack when said planetary differential is configured to function as the torque biasing differential (i.e., Fig. 1).

Allowable Subject Matter

6. Claim 4 is allowed.

Response to Arguments

7. Applicant's arguments with respect to claims 1-3, 5-7, and 11-15 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after

Art Unit: 3681


the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David D. Le whose telephone number is 571-272-7092. The examiner can normally be reached on Mon-Fri (0700-1530).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Charles A. Marmor can be reached on 571-272-7095. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


ddl


CHARLES A. MARMOR
SUPERVISORY PATENT EXAMINER
ART UNIT 3681